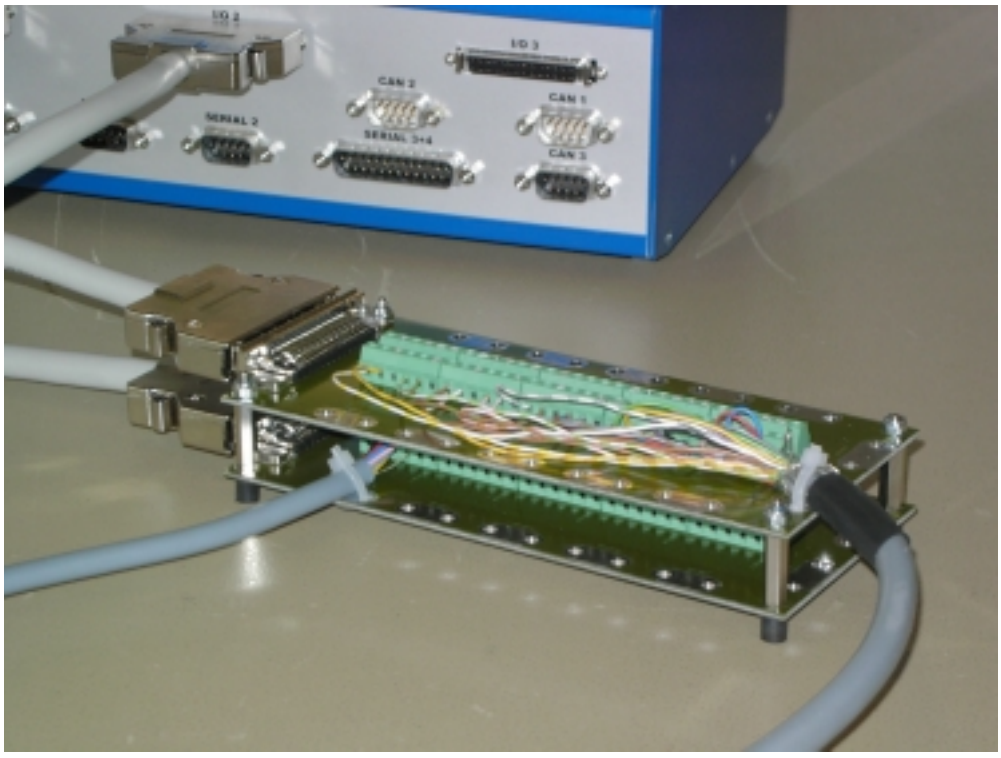
High Pin Count I/O Interconnection Board

The TERM50 is an interconnection board that eases connection to high I/O count peripheral boards. Its primary intention is to support I/O connection to the MPL PIP series of industrial PC products.
Typically PC/104 peripheral boards present their I/O's on two standard raw 0.1 in pin headers up to a total pin count of 50. MPL AG brings these I/O signals to a mini Dsub connector on the PIP front through an adapter cable. The TERM50 allows the translation from mini Dsub to individual screw terminals and presents additional screw terminals for shield connections.



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1. INTRODUCTION

1.1 ABOUT THIS MANUAL

This manual assists the installation of the TERM50 screw terminal adapter and provides the specifications for save operation of this adapter.
This manual is written for technical personnel!

1.2 SAFETY PRECAUTIONS AND HANDLING

For personal safety and safe operation of the TERM50, follow all safety procedures described here and in other sections of the manual.

- Remove power from the system before installing (or removing) the TERM50 to prevent the possibility of personal injury (electrical shock) and/or damage to the product.
- Handle the product carefully; i.e., dropping or mishandling the TERM50 can cause damage to assemblies and components.
- Do not expose the equipment to moisture.

WARNING

There are no user-serviceable components on the TERM50.

1.3 ELECTROSTATIC DISCHARGE (ESD) PROTECTION

Even though there are no electrical components within the product that are sensitive to static and electrostatic discharge (ESD) you should follow the common precautions to avoid electrostatic discharge to protect the connected products!

1.4 EQUIPMENT SAFETY

Great care is taken by MPL that all its products are thoroughly and rigorously tested before leaving the factory to ensure that they are fully operational and conform to specification. However, no matter how reliable a product, there is always the remote possibility that a defect may occur. The occurrence of a defect on this device may, under certain conditions, cause a defect to occur in adjoining and/or connected equipment. It is the user's responsibility to protect such equipment when installing this device. MPL accepts no responsibility whatsoever for such defects, however caused.

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2. TECHNICAL DATA

Electrical Characteristics:

- Current rating: 500 mA_{rms} per line
  1 A_{peak} per line
- Voltage rating: 30 VDC line to line and line to shield

Mechanical Characteristics:

- Module size: 160 x 70 x 17 mm (excluding mechanical fixtures)

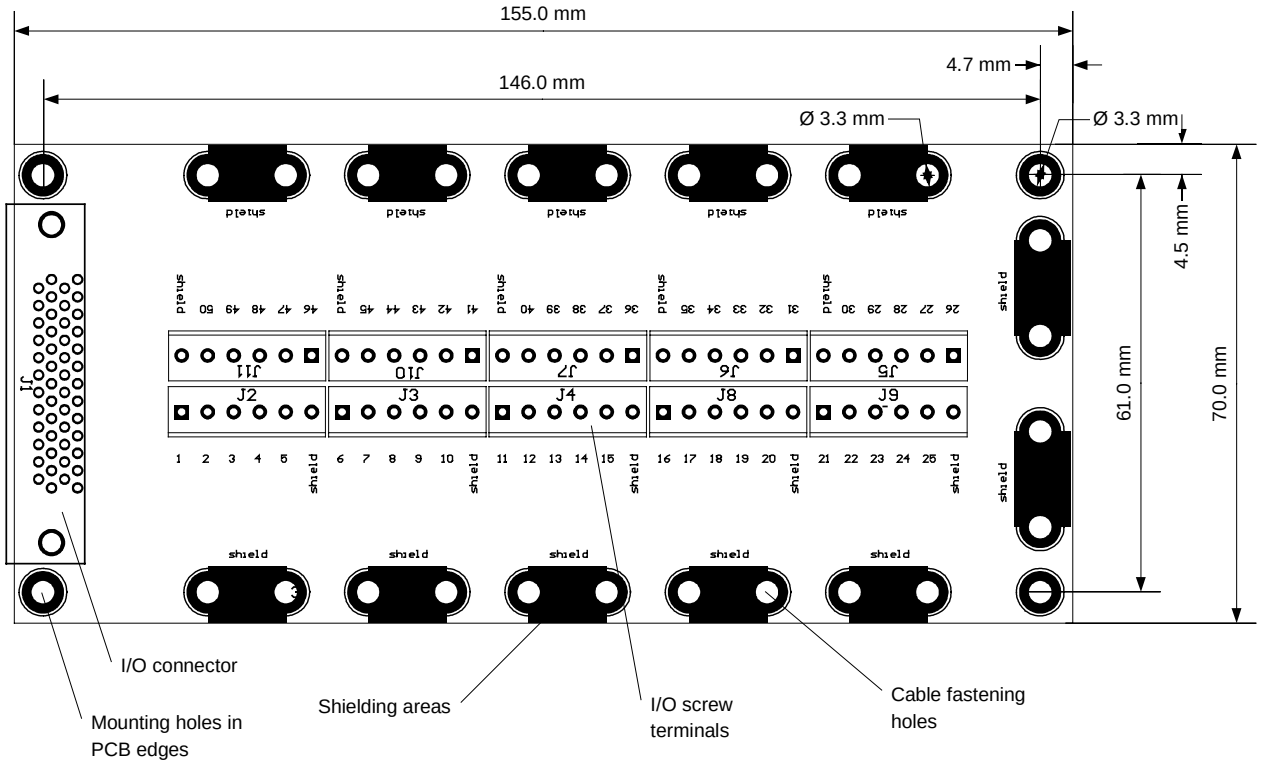
Connector/Screw Terminals:

- I/O-connector: Mini Dsub 50 female with latch
- Screw terminals: 3.81 mm spacing
  Applicable wire size 0.14-1 mm^2 (AWG 26-16)

3. GENERAL DESCRIPTION

The TERM50 is a simple interconnection board that breaks out the signals of a 50 pin mini Dsub connector to easy-to-connect screw terminals. In addition there are screw terminals to connect cable shields as well as open areas to directly connect the cable shields to the PCB together with mechanical parts.
The layout is such that the lines are separated from each other by a shielding track thus minimizing electrical crosstalk to analog I/O signals.

3.1 PARTS LOCATION



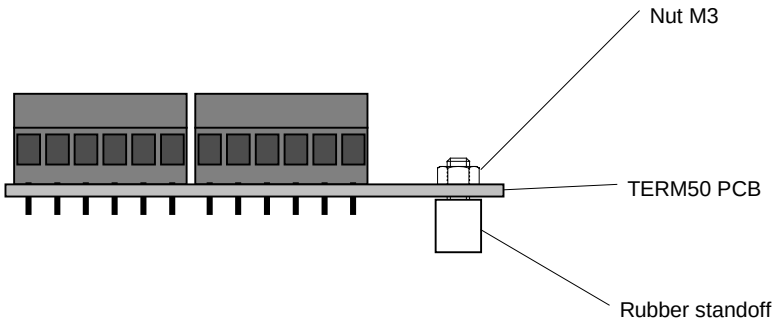
4. PREPARATION FOR USE

Together with the TERM50 comes a set of mechanical parts. Depending the intended use they are required or not. Two basic configurations can be built with these parts. For a third kind of mechanical fxture – to a DIN rail – MPL provides a separate kit. For detailed ordering information refer to section 5.

4.1 BASIC APPLICATION

The basic application is where the interconnections are made by one or more TERM50's each placed individually on a working surface. For this following parts out of the set of mechanical parts are required:

- 4 rubber standoffs with integrated screw M3x6
- 4 nuts M3



The illustration shows how the rubber standoffs are mounted one in each mounting hole at the PCB edges.

4.2 STACKED APPLICATION

The stacked application is the case where two or more TERM50's are placed on top of each other on a working surface. In this configuration the base TERM50 must be distinguished from the intermediate TERM50 and the top TERM50.

NOTE:

Do not stack more than three TERM50 because of mechanical instability!

NOTE:

Make connections to the screw terminals before stacking the boards. Screw terminals are not accessible once the boards are stacked.

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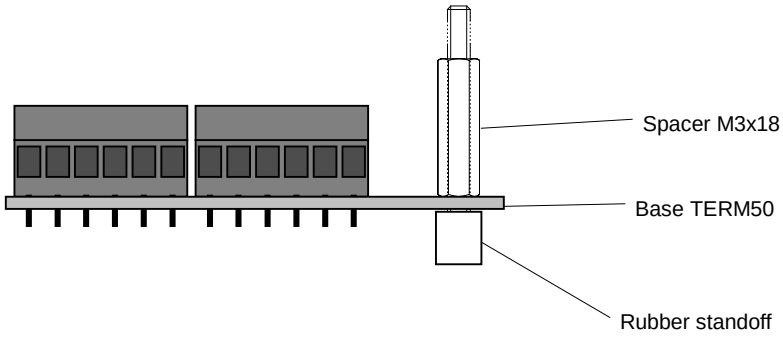
4.2.1 BASE TERM50

The lowest board in the stack is placed on the working surface and thus requires the standoffs as in the basic application. The parts required are

- 4 rubber standoffs with integrated screw M3x6
- 4 spacers M3x18

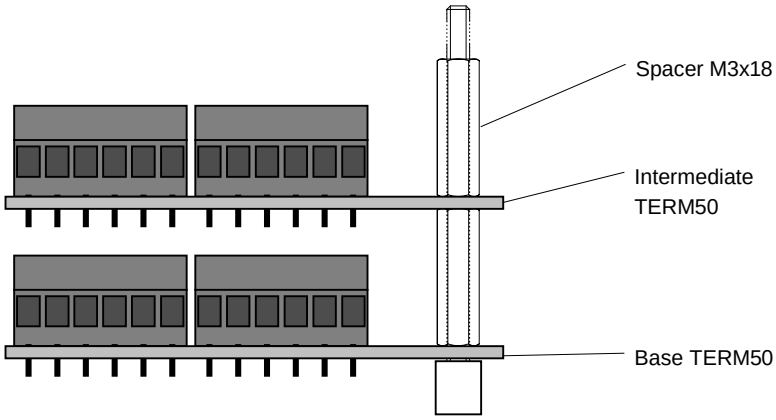


The figure shows the assembly of the parts in the mounting holes of the PCB. After the wires are connected to the screw terminals the intermediate TERM50 can be mounted as detailed below.

4.2.2 INTERMEDIATE TERM50

It is placed on top of the base TERM50. To fasten it on the spacers of the lower board the following mechanical parts are required:

- 4 spacers M3x18



After connecting the wires to the screw terminals you can mount the top TERM50.

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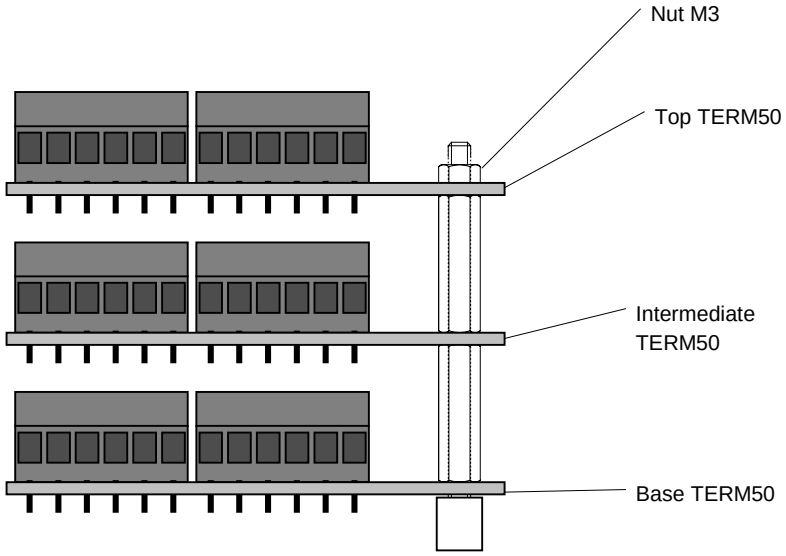
4.2.3 TOP TERM50

The top TERM50 is the end of the stack and therefore just requires

- 4 nuts M3

to fasten it to the intermediate TERM50.



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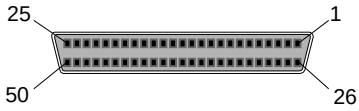
5. CONNECTION TO THE TERM50

5.1 I/O CONNECTOR

The connector used is from the AMPLIMITE .050 series III from Tyco/AMP. The part number is

0-787082-5

The cable included with the TERM50 allows a one-to-one wiring to the MPL standard I/O connector of the PIP series industrial computers. The pin numbering scheme is as illustrated below (front view):



For customers not intending to use the included cable the following are some examples of similar connectors from Tyco/AMP:

750913-5
749111-4
749621-5
1-390377-5

For further details see also

www.amp.com

5.2 SCREW TERMINAL CONNECTION

For easy access the screw terminals are grouped in blocks with five signal terminals and one shield terminal. Additionally the corresponding pin number of the I/O connector is marked in front of the terminal on top and bottom of the board.

5.3 FASTENING OF CABLES

In front of each terminal block is an area that allows easy shielding and mechanically fastening of cables. Simply pull a tie wrap through the two holes and tie the cable with its blank shield to the shielding area of the TERM50.
Two additional shielding areas can also be found on the short edge of the TERM50.

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6. SUPPORT INFORMATION

6.1 DIN-RAIL MOUNTING KIT

A DIN rail mounting can be ordered under the following part number:

DRM50-1

It consists of a baseplate with a DIN rail mounting clamp and the necessary screws to mount the TERM50.

6.2 MPL AG

In case of questions contact MPL AG or your local distributor.

MPL AG home page: www.mpl.ch
Email address: support@mpl.ch

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This manual reflects Revision A of the TERM50.

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